



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/400,350	09/20/1999	CLARENCE T. TEGREENE	MVIS-97-14CI	3341

27076 7590 10/04/2005

DORSEY & WHITNEY LLP  
INTELLECTUAL PROPERTY DEPARTMENT  
SUITE 3400  
1420 FIFTH AVENUE  
SEATTLE, WA 98101

EXAMINER

NGUYEN, KEVIN M

ART UNIT PAPER NUMBER

2674

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/400,350	<b>Applicant(s)</b> TEGREENE ET AL.	
	<b>Examiner</b> Kevin M. Nguyen	<b>Art Unit</b> 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. This office action is made in response to applicant's amendment filed on 07/18/2005. Claims 1-26 and 28-29 are cancelled, claim 27 is amended. Thus, claim 27 is currently pending in the application. An action follows below:

#### ***Specification***

2. A consistent amended specification with the drawing was received on 07/18/2005 is acknowledged. However, another recitations in the specification are objected because the following reference signs of drawings mentioned in the description are inconsistent with the specification. For example, at least recitation in the specification at page 17, lines 6-7, and page 28, line 11 and line 14 "the deformable membrane 180... of Figure 8". At least recitation in the specification at page 27, line 13-23 "the scanner 130... the horizontal scanner 54 of Figure 9." It is in the best interest of the patent community that applicant, in his/her normal review and/or rewriting of the specification, to take into consideration these editorial situations and make changes as necessary.

It is noted that applicant's amendment with respect to claim 27 necessitated the new grounds of rejection presented in this Office action.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2674

4. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Montagu (previously cited, US 4,874,215) in view of Fleming (previously cited, US 5,867,302).

5. As to claim 27, Montagu teaches an scanning apparatus in Fig. 1, col. 2, line 35, the scanning apparatus, comprising: a primary mirror. See fig. 1, col. 3, lines 55-57, teaching, "a mirror on the high resonant scanner 11".

Montagu further teaches that the primary mirror move through a predetermined scan path at a selected scan rate having a scanning period that defined a scanning frequency. See col. 12, lines 54-55, teaching, "the total angular deflection can be about  $14^{\circ}$ ". Thus, a predetermined scan path is the total angular deflection  $14^{\circ}$ . See col. 2, lines 56-59, and teaching, "oscillate sinusoidally about an axis 19 at half the fundamental repetition rate of the lines in the data delivered from source 15 at 7867 Hz".

Montagu further teaches that a resonant reflector. See fig. 1, col. 3, lines 51 and lines 55-57, teaching, "a mirror on the high resonant scanner 13." Thus, the mirror on the high resonant scanner 13 uses to reflect light beam.

Montagu further teaches that the resonant reflector aligned to the primary mirror and being of the type the moves resonantly through a movement path at a resonant frequency. See col. 3, line 25-26, lines 33-36, and lines 40-42, teaching, "tuner 27 which is connected to scanners 11 and 13 controls its difference between current frequency and reference frequency to achieve proper scanning synchronized with the rate of the image data received by tuner 27 from source 15". Thus, the turner 27 is used to align the scanned light beam by the tuned frequency.

Montagu further teaches that wherein the resonant frequency is an integral multiple of the scanning frequency. See col. 3, lines 13-15, teaching, "galvanometric frame scanner 14 has a sawtooth motion (about axis 27) at the frame rate (e.g. at 30Hz) in synchronism. See col. 2, lines 56-59, teaching, "oscillates sinusoidally about an axis 19 at half the fundamental repetition rate of the lines in the data delivered from source 15" at a scanning frequency (e.g. at 7867 Hz)". Thus, the tuner 27 (fig. 1) detects in response to the resonant frequency 30Hz is an integral multiple of the scanning frequency 7867 Hz (see Montagu's, claim 1, lines 61-65).

Montagu further teaches "wherein the resonant reflector aligned to reflect light reflected from the primary mirror. See col. 2, lines 66-68, teaching, "modulator deflector 20 rotates beam segment 17 about an axis 25 (also parallel to axis 19). See col. 3, lines 3-6, teaching, "such that the combined beam rotation imparted by all three beam deflectors 11, 13, 20 represents a periodic triangle wave for scanning the lines". Thus, the modulator deflector 20 is used to align to reflect light reflected from the primary mirror by the controller 26.

Accordingly, Montagu teaches all the subject matter claimed except the use of a deformable microelectromechanical reflective membrane for alignment to reflect light reflected from the primary mirror, and wherein the movement path includes deformation of the membrane.

However, Fleming teaches a related scanning device in Figs. 7a and 7b, col. 12, lines 5 through col. 13, line 17. The scanning device comprises a deformable (deflection, col. 12, line 15) microelectromechanical (a microelectromechanical, col. 13,

Art Unit: 2674

lines 16-17) reflective (the reflective light beam 200', col. 13, line 4) membrane (a membrane 14, col. 12, line 53). Fleming further teaches the use of the deformable microelectromechanical reflective membrane for alignment to reflect light reflected from the primary mirror. See col. 12, lines 46-52, teaching, "In switching from a first mechanical state as shown in FIG. 7a to a second mechanical state which is a mirror image of the first state as shown in FIG. 7b, the switchable mirror device 10 steers the reflected light beam 200' through a total angular deflection of  $2\theta$ . The exact value of the total angular deflection depends on a curvilinear cross-sectional shape assumed by the membrane 14 upon release". Fleming further teaches wherein the movement path includes deformation of the membrane. See col. 12, lines 50-52, teaching, "the exact value of the total angular deflection depends on a curvilinear cross-sectional shape assumed by the membrane 14 upon release". Fleming further teaches the optical device 10 operates digitally due to the bistable nature of the membrane 14, and can be used to modulate an incident light beam 200 at a predetermined frequency (see col. 11, lines 39-42). Thus, the Fleming's rotatable deformable microelectromechanical reflective membrane is used to align the scanned light beam by the predetermined frequency.

Accordingly, Fleming teaches the mirror 52 is mounted on the membrane 14 (see fig. 7a), but Fleming does not teach making integral of the mirror 52 and the membrane 14. It would have been obvious to a person of ordinary skill in the art at the time of the invention of the matter of design choice to make integral the mirror 52 and the membrane 14 as taught by Fleming for the deformable microelectromechanical reflective membrane as claimed. Since such a modification would have involved a mere

Art Unit: 2674

chance in the making integral of a component. A making integral is generally recognized as being within the level of ordinary skill in the art. *In re Larson*, 144 USPQ 347 (CCPA 1965).

Therefore, it would have been obvious to one of ordinary skill in the art to substitute each Montagu's rotatable scanner mirrors 11, 13, 14 with three rotatable deformable microelectromechanicals reflective membranes, respectively, as taught by Fleming in order to achieve the benefit of application for forming optical displays, optical information processors, and optical readouts, while improving a contrast of the device 10 for display application (see Fleming's, col. 13, lines 1-3, and lines 5-6).

Moreover, where the claimed differences involve substitution of interchangeable equivalents and the reason for the selection of one equivalent for another was not to solve an existent problem such substitution has been judicially determined to have been obvious. See *In re Ruff*, 118 USPQ 343 (CCPA 1958).

### ***Response to Arguments***

6. Applicant's arguments filed 07/18/2005 have been fully considered but they are not persuasive.

Applicant argues that "the Montagu patent has been cited for disclosing an optical scanning system having a primary mirror that moves through a predetermined scan path at a selected scan rate, and a resonant reflector aligned to the primary mirror," page 5, last paragraph. In response, examiner disagrees because Montagu patent disclose the optical scanning system in Fig. 1, col. 2, line 35. Applicant argues that "Montagu patent does not disclose the use of a deformable microelectromechanical

Art Unit: 2674

reflective membrane...instead, the patent to Fleming has been cited to supply this teaching" at page 6, lines 2-4. Examiner is not convinced by Applicant's argument. As stated *supra* with respect to claim 27, Examiner finds that Montagu teaches all the subject matter claimed except for a deformable microelectromechanical reflective membrane, as modified by, Fleming teaches a related scanning device in Fig. 7a and 7b, col. 3, lines 25-26. Fleming further teaches the scanning device comprises a deformable (deflection, col. 12, line 15) microelectromechanical (microelectromechanical, col. 13, lines 16-17) reflective (the reflective light beam 200', col. 13, line 4) membrane (a membrane 14, col. 12, line 53).

Applicant argues that "the embodiment of Figures 7a and 7b use a single flat mirror mounted on the deformable membrane that tilts in opposite directions depending upon the state of the deformable member. However, it is significant that (1) the mirrors themselves are not deformable, and (2) the deformable membrane is not disclosed to be reflective," page 6, lines 8-14. In response, examiner disagrees because fig. 7a of Fleming expressly shows the combination the mirror 52 with membrane 14 would result the scanning system works as scanning functions so that the light beam 200 is incident and the light beam 200' is reflective (see fig. 7a of Fleming).

In response to applicant's argument that the Fleming patent is non-analogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir.



Art Unit: 2674

1992). In this case, Fleming's microelectromechanical device is the scanning device which works as scanning functions so that the light beam 200 is incident and the light beam 200' is reflective (see fig. 7a of Fleming), and Fleming's microelectromechanical device applies for forming optical displays, optical information processors, and optical readouts, (see Fleming's, col. 13, lines 1-3). Therefore, the Fleming patent is the analogous art.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, examiner provide the motivation at each end of the combination of the two prior arts. As stated *supra*, both Montagu patent and Fleming patent are analogous arts; therefore, the combination of the Montagu patent with the Fleming patent results the subject matter of claim 27.

In response to applicant's argument that "make the deformable membrane reflective" at page 6, line 25, and "intended scanning functions" at page 6, line 29, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of

Art Unit: 2674

making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Applicant argues that "Fleming's deformable membrane was substitute for the resonant reflector used in the Montagu system, the result would be light striking a deformable member that was not necessarily reflective," at page 6, lines 22-24. And applicant argues that "the Fleming mirror substituted for Montagu's resonant reflector is a binary mirror having only two positions" at page 6, 1 last line. In response examiner disagrees because as mentioned above, examiner states the replacements of the enter rotatable Montagu's primary mirror 100 with the enter Fleming's rotatable deformable microelectromechanical reflective membrane (fig. 7a), examiner never states Fleming mirror substituted for Montagu's resonant reflector as applicant argued.

Applicant argues that "Yet in order to perform a scanning function, the reflector must move over a range of positions," at page 7, line 2. In response examiner disagrees because Fleming discloses that the total angular deflection can be about  $14^{\circ}$  (col. 12, lines 54-55). Thus, the range of positions is the total angular deflection  $14^{\circ}$ .

For these reasons, the rejections based on Montagu and Fleming have been maintained.

### **Conclusion**

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

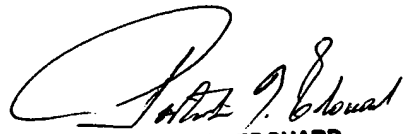
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see

Art Unit: 2674

<http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMN  
September 30, 2005

Kevin M. Nguyen  
Patent Examiner  
Art Unit 2674



**PATRICK N. EDOUARD**  
**SUPERVISORY PATENT EXAMINER**